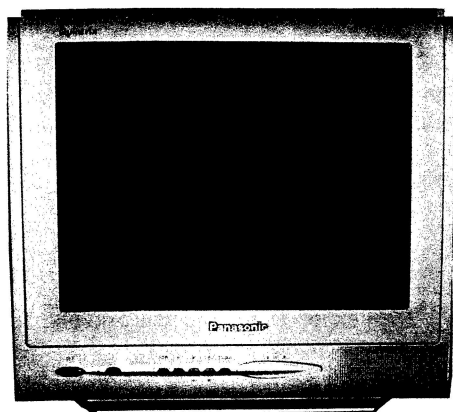


Service Manual



Colour Television TX-15AT1C Z-M3L Chassis

SPECIFICATIONS

Power Source: 220-240V a.c., 50Hz

Power Consumption: 46W

Stand-by Power Consumption: 1W

Aerial Impedance: 75Ω unbalanced, Coaxial Type

Receiving System: PAL-B/G, H, DK, PAL-525/60
SECAM B/G, D/K
M.NTSC
NTSC (AV only)

Receiving Channels:

VHF E2-E12	VHF H1-H2 (ITALY)
VHF A-H (ITALY)	VHF R1-R2
VHF R3-R5	VHF R6-R12
UHF E21-E68	CATV (S01-S05)
CATV S1-S10 (M1-M10)	CATV S11-S20 (U1-U10)
CATV S21-S41 (HYPERBAND)	

Intermediate Frequency:

Video/Audio	
Video	38.9MHz, 34MHz
Audio	32.9MHz, 33.16MHz, 33.4MHz
Colour	34.47MHz (PAL)
	34.5MHz, 34.65MHz (SECAM)

Video/Audio Terminals:

AV1 IN	Video (21 pin)	1V p-p 75Ω
	Audio (21 pin)	500mV rms 10kΩ
	RGB (21 pin)	
	Audio (RCAx1)	500mV rms 10kΩ
	Video (RCAx1)	1V p-p 75Ω

AV1 OUT	Video (21 pin)	1V p-p 75Ω
	Audio (21 pin)	500mV rms 1kΩ

High Voltage: 26.5kV ± 1kV

Picture Tube: A36AKJ13X02E 37cm

Audio Output: 3W (Music Power)
8Ω Impedance

Headphones: 8Ω Impedance
3.5mm

Accessories supplied : Remote Control
2 x R6 (UM3) Batteries

Dimensions:

Height:	368mm
Width:	388mm
Depth:	387mm

Net weight: 11kg

Specifications are subject to change without notice.
Weights and dimensions shown are approximate.

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SAFETY PRECAUTIONS

GENERAL GUIDE LINES

1. It is advisable to insert an isolation transformer in the a.c. supply before servicing a hot chassis.
2. When servicing, observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all parts that have been overheated or damaged by the short circuit.
3. After servicing, see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.
4. When the receiver is not being used for a long period of time, unplug the power cord from the a.c. outlet.
5. Potentials as high as 27.5kV are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the tube.
6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazard.

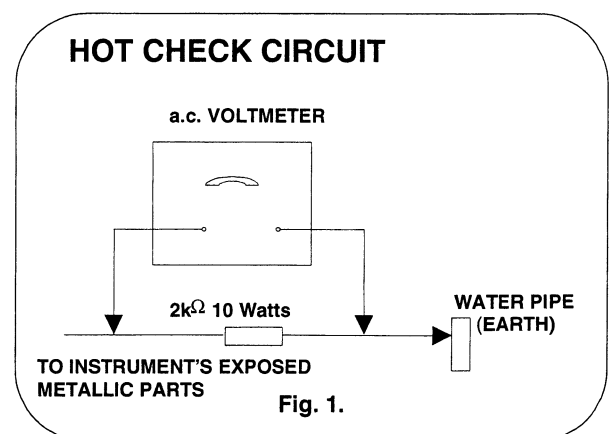
LEAKAGE CURRENT COLD CHECK

1. Unplug the a.c. cord and connect a jumper between the two prongs of the plug.
2. Turn on the receiver's power switch.
3. Measure the resistance value with an ohmmeter, between the jumpered a.c. plug and each exposed metallic cabinet part on the receiver, such as screw heads, aerials, connectors, control shafts etc. When the exposed metallic part has a return path to the chassis, the reading should be between 4M ohm and 20M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinite.

LEAKAGE CURRENT HOT CHECK

1. Plug the a.c. cord directly into the a.c. outlet. Do not use an isolation transformer for this check.
2. Connect a 2k Ω 10W resistor in series with an exposed metallic part on the receiver and an earth, such as a water pipe.
3. Use an a.c. voltmeter with high impedance to measure the potential across the resistor.

4. Check each exposed metallic part and check the voltage at each point.
5. Reverse the a.c. plug at the outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 1,4Vrms. In case a measurement is outside the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.



X-RADIATION WARNING

1. The potential sources of X-Radiation in TV sets are the high voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that the jig is capable of handling 27.5kV without causing X-Radiation.

NOTE: It is important to use an accurate periodically calibrated high voltage meter.

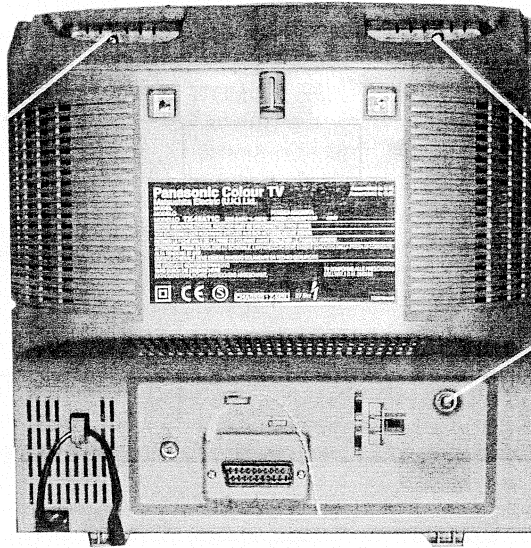
1. Set the brightness to minimum.
2. Measure the high voltage. The meter should indicate. 26.5kV \pm 1kV.
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3. To prevent any X-Radiation possibility, it is essential to use the specified tube.

SERVICE HINTS

How to remove the rear cover

1. Remove the 5 screws as shown in Fig.2.

SCREWS



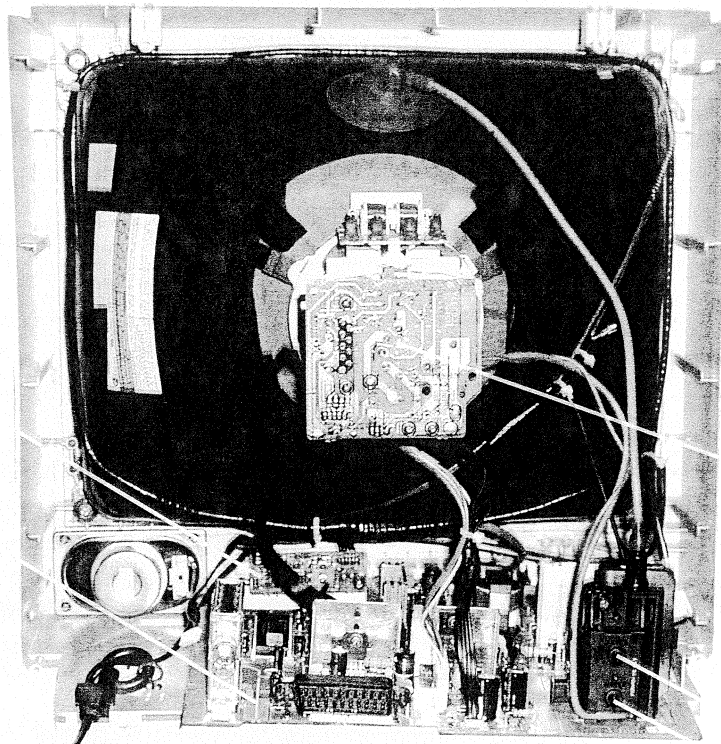
SCREWS

Fig. 2.

LOCATION OF CONTROLS

AV Board

Main Board



CRT Board

Focus

Screen

ALIGNMENT PROCEDURE AND OPTION SETTING

(The figures below are nominal and used for representative purposes only.)

Entering SERVICE mode

To enter the On-Screen display adjustment, adjust the unit to channel 99, select the sharpness setting using the function (F) button. Set the sharpness to a minimum using the minus button. Press function key again to store the sharpness setting. Then press the DOWN button on the unit whilst pressing the MUTE button on the remote control. Select the adjustment items by the UP/DOWN button on the remote control, then adjust them by the +/- button. After adjustment, be sure to press the TV/AV button to confirm the required values. Press the function key to store all adjustment values

Service mode navigation

- Up /Down remote keys :cycle through the service items available.
- +/- remote keys :Decrement/Increment the values within range.
- TV/AV :Store the current data.

Order	Item	Optimum setting
1	Cut off (UG2)	TEST
2	Vertical slope (V-slo)	031
3	Vertical position (V-pos)	033
4	Vertical amplitude (V-Amp)	029
5	Horizontal position (H-Ctr)	030
6	Red Cut (R-Cut)	035
7	Green Cut (G-Cut)	028
8	Red Drive (R-Drv)	026
9	Green Drive (G-Drv)	037
10	Blue Drive (B-Drv)	029
11	AGC	031
12	Sub-Colour (S-Col)	019
13	Sub-Brightness (S-Bri)	029

Cut Off UG2 alignment:

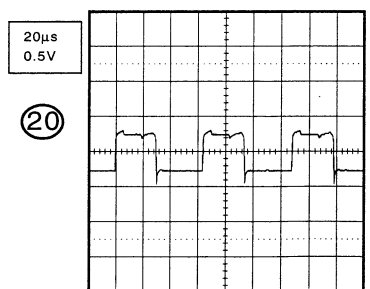
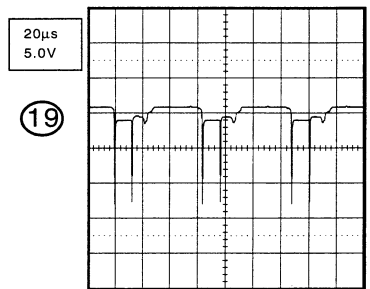
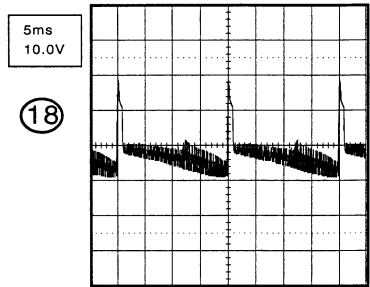
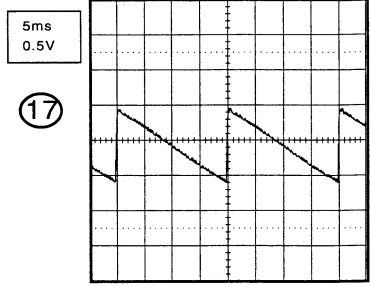
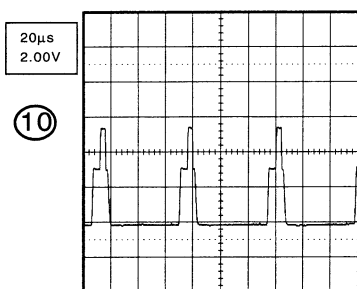
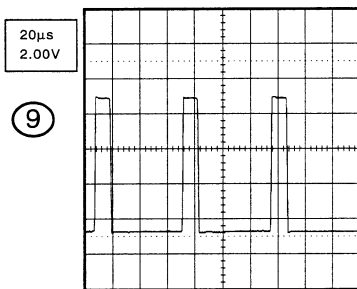
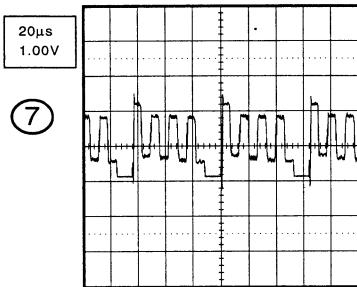
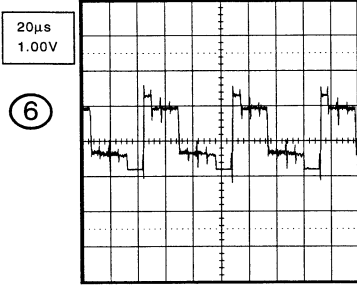
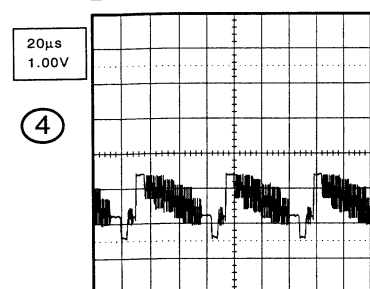
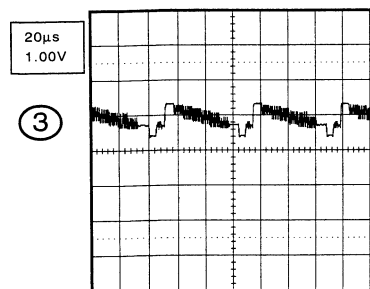
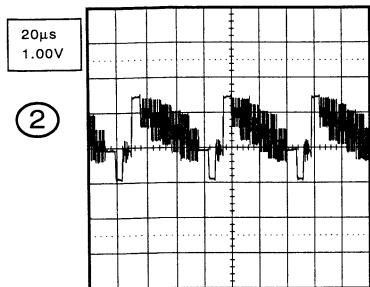
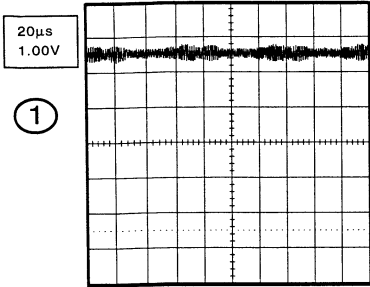
Adjust the unit to the following settings, R-Cut=32, G-Cut=32, R-Drv=32, G-Drv=32, B-Drv=32. Place the set into an ageing test for >15 minutes. Activate the UG2 display adjustment mode. Adjust the SCREEN VOLUME until the indicator on the unit will light up.

White Balance:

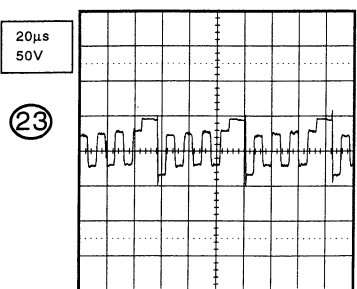
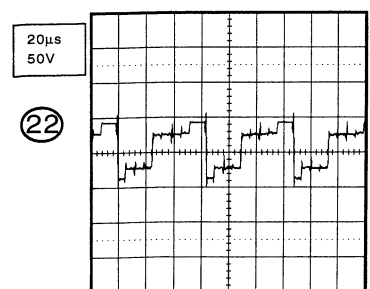
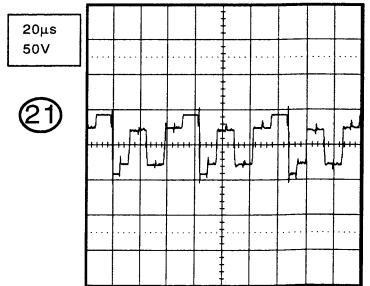
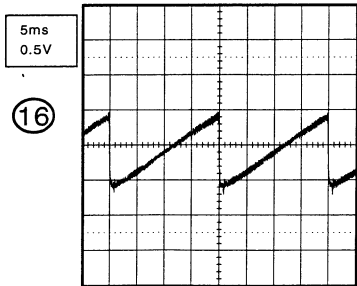
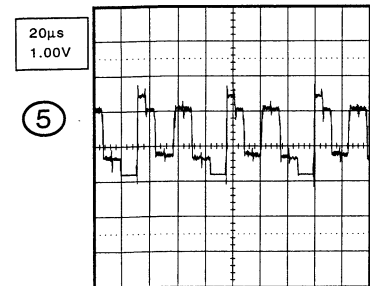
Adjust after performing UG2 CUT OFF adjustment. Place the set into an ageing test for >10 minutes. Receive the gray scale from a pattern generator. Set the colour balance to normal position. Activate the adjustment mode, press the UP/DOWN button on the remote to select R-Cut, G-Cut, R-Drv, G-Drv, and B-Drv and adjust accordingly using +/- button on the remote to whiten. Perform the adjustment until the white colour seems white.

WAVEFORMS

MICON/CHROMA



DEFLECTION/CRT



NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagrams. (see pages 13-16)

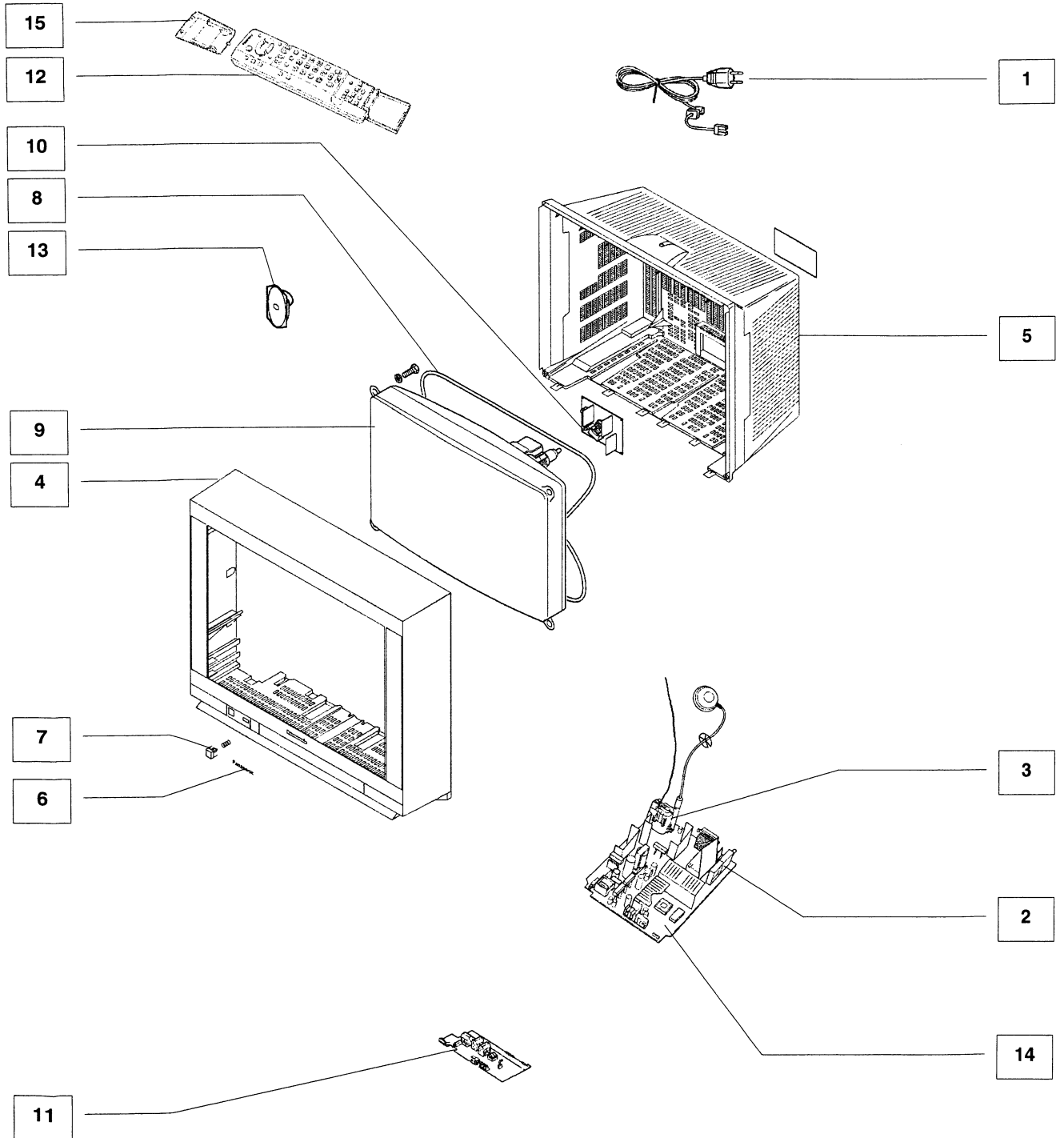
6



PARTS LOCATION


NOTE:













The numbers on the exploded view below refer to the mechanical section of the Replacement Parts List. For representation purposes only.




REPLACEMENT PARTS LIST

Important Safety Notice

Components Identified by  mark have special characteristics important for safety.
* When replacing any of these components, use only manufacturers specified parts.
In case of ordering these spare parts, please always add the complete Model-Type number to your order.

Cct Ref	Parts Number	Description	
EXPLODED VIEW			
1	0665A801	AC POWER CORD	
2	145517006	TUNER	
3	3214035F	FLY BACK TRANSFORMER	
4	701UPJ0306	CABINET	
5	702UPA0233	BACKCOVER	
6	7235760001	PANASONIC BADGE	
7	735UPA0100	POWER BUTTON	
8	8R140027	DEGAUSS COIL	
9	A36AKJ13X02E	CRT	
10	A3L009C110K	CRT P.C.B.	
11	A3L009C250K	AV P.C.B.	
12	EUR511300	REMOTE CONTROL	
13	S0509F36	SPEAKER	
14	TMB538A	MAIN P.C.B.	
15	UR51EC904A	BATTERY COVER (REMOTE)	
MISCELLANEOUS COMPONENTS			
.	713UPA0022	REMOCON GUIDE	
.	713UPB0003	AV COVER	
.	735UPA0099	KEY BUTTONS	
.	793UCDA964	CARTON	
.	800UF00001	CUSHION LEG	
ANT001	125C10802	ANTENNA ROD	
BT001	UM-3DEP-2P	BATTERY PACK	
CUS011	800WFAA00	CUSHION	
RY501	ALKS329	RELAY	
I.C.s			
IC101	TDA9360	MICON/CHROMA	
IC199	X24C1615AT1C	EAROM*	
IC401	TDA8357J	VERTICAL AMPLIFIER	
IC501	KIA7805API	5V REGULATOR	
IC502	KIA7808API	8V REGULATOR	
IC801	TDA6107Q	RGB OUTPUT	
IC1001	AN7523	AUDIO AMPLIFIER	
OS101	PIC-37142SY	REMOTE RECEIVER	
FUSES			
F501	50T040HCC	FUSE	
DIODES			
D001	MTZJT-7733/B	ZENER DIODE	
D101	SLR-342VCT32	LED	
D401	AU02A-EIC	DIODE	
D402	AU02A-EIC	DIODE	
D403	MTZJT-7733/B	ZENER DIODE	
D404	MTZJT-7733/B	ZENER DIODE	
D406	MTZJ12BT-77	ZENER DIODE	
D407	MA165TA5	DIODE	
D408	MTZJ18BT-77	ZENER DIODE	
D409	AU02A-EIC	DIODE	
D410	MTZJT-776.8B	ZENER DIODE	
D411	MA165TA5	DIODE	
D413	AU02A-EIC	DIODE	

Cct Ref	Parts Number	Description	
D501	D2WTRM11C	DIODE	
D502	D2WTRM11C	DIODE	
D503	D2WTRM11C	DIODE	
D504	D2WTRM11C	DIODE	
D505	SB290S	DIODE	
D506	MTZJT-775.6B	DIODE	
D507	MTZJ18BT-77	ZENER DIODE	
D508	SB290S	DIODE	
D509	MA165TA5	DIODE	
D510	15DF6	DIODE	
D511	MTZJ18BT-77	ZENER DIODE	
D512	1N4937	DIODE	
D513	SB290S	DIODE	
D514	MA165TA5	DIODE	
D515	MA165TA5	DIODE	
D516	SB290S	DIODE	
D517	MA165TA5	DIODE	
D518	MA165TA5	DIODE	
D519	MA165TA5	DIODE	
D520	MTZJ18BT-77	ZENER DIODE	
D521	MA165TA5	DIODE	
D522	MTZJ3.9BT-77	ZENER DIODE	
D524	SB290S	DIODE	
D525	MA165TA5	DIODE	
D528	MTZJT-775.6B	DIODE	
D529	1N4005-EIC	DIODE	
D530	MA165TA5	DIODE	
D532	1N4005-EIC	DIODE	
D533	1N4005-EIC	DIODE	
D534	1N4005-EIC	DIODE	
D602	MA165TA5	DIODE	
D603	MA165TA5	DIODE	
D801	AU02A-EIC	DIODE	
D802	AU02A-EIC	DIODE	
D803	AU02A-EIC	DIODE	
IC506	LTV-817M-VB	PHOTO COUPLER	
TH501	B59104-T80-B	THERMISTOR(PTC)	
TRANSISTORS			
Q401	2SD2499	TRANSISTOR	
Q402	2SA1624	TRANSISTOR	
Q405	2SC1627Y	TRANSISTOR	
Q501	KTC3209Y-AT	POWER TRANSISTOR	
Q502	KTC3203Y-AT	POWER TRANSISTOR	
Q503	KTC3209Y-AT	POWER TRANSISTOR	
Q504	2SC2412	TRANSISTOR	
Q505	2SC2412	TRANSISTOR	
Q506	KRA102SRTK	SWITCHING TRANSISTOR	
Q507	KTC3198-ATY	POWER TRANSISTOR	
Q508	KTC3198-ATY	POWER TRANSISTOR	
Q509	KTC3209Y-AT	POWER TRANSISTOR	
Q511	2SK2647-01MR	MOSFET	
Q512	KRA102SRTK	SWITCHING TRANSISTOR	

Cct Ref	Parts Number	Description
Q513	KRC102SRTK	SWITCHING TRANSISTOR
Q601	2SC2412	TRANSISTOR
Q602	2SC2412	TRANSISTOR
Q606	2SC2412	TRANSISTOR
Q607	2SC2412	TRANSISTOR
Q608	2SA1037AKT14	TRANSISTOR
Q609	KTC3881S-RTK	POWER TRANSISTOR
TRANSFORMERS		
T401	ETH14Y47AY	DRIVE TRANSFORMER ▲
COILS		
B502	024HT03564	BEAD CORE
B504	024HT03553	BEAD CORE
B1003	024HT03553	BEAD CORE
L001	EL0305RA100J	COIL
L101	EL0305RA100J	COIL
L102	EL0305RA100J	COIL
L104	EL0305RA100J	COIL
L401	EL0909RR472K	COIL
L402	20416A	LINEARITY COIL
L501	029T00009	COIL
L502	02AHB9A972	FERRITE CORE
L503	028R14002	COIL
L601	EL0305RA100J	COIL
L602	LAP02TA100J	COIL
L603	EL0305RA680J	COIL
L604	021LA6R33M	COIL
L605	021LA62R2K	COIL
L701	LAP02TA100J	COIL
L703	LAP02TA100J	COIL
L704	LAP02TA100J	COIL
L705	LAP02TA100J	COIL
L706	0216S7100J	COIL
L802	EL0606RA560J	COIL
FILTERS		
CF601	102E238R9G	FILTER
CF604	1012T5R507	CERAMIC FILTER
CF605	MKT40.4MA110	TRAP FILTER
CF607	1012T03101	CERAMIC FILTER
CRYSTALS		
X101	HC-49/U-S	QUARTZ OSCILLATOR
RESISTORS		
R001	ERDS1TJ183	CARBON 0.5W 5% 18K Ω
R002	ERDS1TJ183	CARBON 0.5W 5% 18K Ω
R003	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R004	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R005	ERJ6GEYJ104	S.M.CARB 0.1W 5% 100K Ω
R006	ERJ6GEYJ103	S.M.CARB 0.1W 5% 10K Ω
R007	ERJ6GEYJ750	S.M.CARB 0.1W 5% 75 Ω
R008	ERJ6GEYJ123	S.M.CARB 0.1W 5% 12K Ω
R101	ERJ6GEYJ181	S.M.CARB 0.1W 5% 180 Ω
R102	ERJ6GEYJ221	S.M.CARB 0.1W 5% 220 Ω
R103	ERJ6GEYJ331	S.M.CARB 0.1W 5% 330 Ω
R104	ERJ6GEYJ471	S.M.CARB 0.1W 5% 470 Ω
R105	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R106	ERJ6GEYJ332	S.M.CARB 0.1W 5% 3K3 Ω
R107	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R108	ERJ6GEYJ332	S.M.CARB 0.1W 5% 3K3 Ω
R109	ERD25TJ122	CARBON 0.25W 5% 1K2 Ω
R110	ERJ6GEYJ333	S.M.CARB 0.1W 5% 33K Ω
R111	ERJ6GEYJ153	S.M.CARB 0.1W 5% 15K Ω
R112	ERD25TJ101	CARBON 0.25W 5% 100 Ω
R113	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R114	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R115	ERJ6GEYJ221	S.M.CARB 0.1W 5% 220 Ω
R116	ERJ6GEYJ153	S.M.CARB 0.1W 5% 15K Ω

Cct Ref	Parts Number	Description
R117	ERD25TJ332	CARBON 0.25W 5% 3K3 Ω
R118	ERD25TJ101	CARBON 0.25W 5% 100 Ω
R119	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R120	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R123	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R124	ERJ6GEYJ103	S.M.CARB 0.1W 5% 10K Ω
R126	ERD25TJ470	CARBON 0.25W 5% 47 Ω
R401	ERJ6GEYJ222	S.M.CARB 0.1W 5% 2K2 Ω
R402	ERF2AJ391S	METAL 2W 5% 390 Ω ▲
R403	ERJ6GEYJ222	S.M.CARB 0.1W 5% 2K2 Ω
R404	ERDS1TJ471	CARBON 0.5W 5% 470 Ω
R405	ERDS1TJ1R5	CARBON 0.5W 5% 1R5 Ω
R407	ERD25TJ473	CARBON 0.25W 5% 47K Ω
R408	ERDS1TJ1R5	CARBON 0.5W 5% 1R5 Ω
R409	ERJ6GEYJ564	S.M.CARB 0.1W 5% 560K Ω
R410	ERD25TJ562	CARBON 0.25W 5% 5K6 Ω
R411	ERD25TJ272	CARBON 0.25W 5% 2K7 Ω
R412	ERD25TJ562	CARBON 0.25W 5% 5K6 Ω
R413	ERD25TJ104	CARBON 0.25W 5% 100K Ω
R414	ERD25TJ103	CARBON 0.25W 5% 10K Ω
R415	ERQ14AJW2R0E	FUSIBLE 0.5W 5% 2 Ω
R419	ERDS1TJ331	CARBON 0.5W 5% 330 Ω
R423	ERD25TJ103	CARBON 0.25W 5% 10K Ω
R447	ERQ12HJ470P	FUSIBLE 0.5W 5% 47 Ω ▲
R448	ERG1FJ102P	METAL 1W 5% 1K Ω
R450	ERQ1ABJP5R6S	FUSIBLE 1W 5% 5R6 Ω ▲
R455	ERDS1TJ391	CARBON 1W 5% 390 Ω
R456	ERX2FJ1R0H	METAL 2W 5% 1 Ω ▲
R460	ERD25TJ101	CARBON 0.25W 5% 100 Ω
R490	ERD25TJ223	CARBON 0.25W 5% 22K Ω
R501	ERDS2TJ155T	CARBON 0.5W 5% 1.5M Ω ▲
R502	ERX12SJR82P	METAL 0.5W 5% 0.82 Ω ▲
R503	ERF5AK7R5	METAL 5W 10% 7R5 Ω ▲
R504	ERDS1TJ225	CARBON 0.5W 5% 2M2 Ω
R505	ERD25TJ101	CARBON 0.25W 5% 100 Ω
R506	ERDS1TJ225	CARBON 0.5W 5% 2M2 Ω
R507	ERD25TJ101	CARBON 0.25W 5% 100 Ω
R508	ERG3FJ330H	METAL 3W 5% 33 Ω ▲
R510	ERQ1CKPR33S	FUSIBLE 1W 10% 0.33 Ω ▲
R511	ERG1FJS331E	METAL 1W 5% 330 Ω ▲
R512	ERJ6GEYJ102	S.M.CARB 0.1W 5% 1K Ω
R513	ERJ6GEYJ152	S.M.CARB 0.1W 5% 1K5 Ω
R514	ERDS1TJ104	CARBON 0.5W 5% 100K Ω
R515	ERJ6GEYJ472	S.M.CARB 0.1W 5% 4K7 Ω
R516	ERD25TJ332	CARBON 0.25W 5% 3K3 Ω
R519	ERD25TJ102	CARBON 0.25W 5% 1K Ω
R521	ERDS1TJ102	CARBON 0.5W 5% 1K Ω
R522	ERD25TJ271	CARBON 0.25W 5% 270 Ω
R523	ERD25TJ100	CARBON 0.25W 5% 10 Ω
R524	ERD25TJ151	CARBON 0.25W 5% 150 Ω
R525	ERJ6GEYJ471	S.M.CARB 0.1W 5% 470 Ω
R526	ERJ6GEYJ104	S.M.CARB 0.1W 5% 100K Ω
R528	ERJ6GEYJ102	S.M.CARB 0.1W 5% 1K Ω
R529	ERD25TJ101	CARBON 0.25W 5% 100 Ω
R531	ERJ6GEYJ103	S.M.CARB 0.1W 5% 10K Ω
R532	ERD25TJ332	CARBON 0.25W 5% 3K3 Ω
R533	ERJ6GEYJ102	S.M.CARB 0.1W 5% 1K Ω
R537	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100 Ω
R538	ERD25TJ271	CARBON 0.25W 5% 270 Ω
R601	ERJ6GEYJ153	S.M.CARB 0.1W 5% 15K Ω
R602	ERJ6GEYJ102	S.M.CARB 0.1W 5% 1K Ω
R603	ERJ6GEYJ102	S.M.CARB 0.1W 5% 1K Ω
R604	ERJ6GEYJ393	S.M.CARB 0.1W 5% 39K Ω
R605	ERJ6GEYJ271	S.M.CARB 0.1W 5% 270 Ω
R606	ERJ6GEYJ751	S.M.CARB 0.1W 5% 750 Ω
R607	ERJ6GEYJ471	S.M.CARB 0.1W 5% 470 Ω

Cct Ref	Parts Number	Description			
R608	ERJ6GEYJ392	S.M.CARB	0.1W	5%	3K9 Ω
R609	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R610	ERJ6GEYJ473	S.M.CARB	0.1W	5%	47K Ω
R621	ERJ6GEYJ561	S.M.CARB	0.1W	5%	560 Ω
R622	ERD25TJ101	CARBON	0.25W	5%	100 Ω
R623	ERJ6GEYJ273	S.M.CARB	0.1W	5%	27K Ω
R624	ERJ6GEYJ223	S.M.CARB	0.1W	5%	22K Ω
R625	ERJ6GEYJ221	S.M.CARB	0.1W	5%	220 Ω
R626	ERJ6GEYJ183	S.M.CARB	0.1W	5%	18K Ω
R627	ERJ6GEYJ104	S.M.CARB	0.1W	5%	100K Ω
R628	ERJ6GEYJ391	S.M.CARB	0.1W	5%	390 Ω
R629	ERJ6GEYJ221	S.M.CARB	0.1W	5%	220 Ω
R630	ERJ6GEYJ331	S.M.CARB	0.1W	5%	330 Ω
R631	ERDS2TJ4R7T	CARBON	2W	5%	4R7 Ω
R632	ERD25TJ271	CARBON	0.25W	5%	270 Ω
R633	ERD25TJ561	CARBON	0.25W	5%	560 Ω
R634	ERJ6GEYJ561	S.M.CARB	0.1W	5%	560 Ω
R635	ERJ6GEYJ102	S.M.CARB	0.1W	5%	1K Ω
R636	ERJ6GEYJ470	S.M.CARB	0.1W	5%	47 Ω
R637	ERJ6GEYJ152	S.M.CARB	0.1W	5%	1K5 Ω
R638	R4X5T6333F	METAL	0.16W	5%	33K Ω
R639	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R640	ERJ6GEYJ153	S.M.CARB	0.1W	5%	15K Ω
R641	ERJ6GEYJ221	S.M.CARB	0.1W	5%	220 Ω
R642	ERJ6GEYJ224	S.M.CARB	0.1W	5%	220K Ω
R643	ERJ6GEYJ822	S.M.CARB	0.1W	5%	8K2 Ω
R644	ERJ6GEYJ103	S.M.CARB	0.1W	5%	10K Ω
R645	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R646	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R647	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R648	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R649	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R650	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R651	ERJ6GEYJ681	S.M.CARB	0.1W	5%	680 Ω
R652	ERJ6GEYJ472	S.M.CARB	0.1W	5%	4K7 Ω
R653	ERD25TJ221	CARBON	0.25W	5%	220 Ω
R654	ERJ6GEYJ222	S.M.CARB	0.1W	5%	2K2 Ω
R655	ERJ6GEYJ682	S.M.CARB	0.1W	5%	6K8 Ω
R656	ERD25FJ820P	CARBON	0.25W	5%	82 Ω
R657	ERJ6GEYJ331	S.M.CARB	0.1W	5%	330 Ω
R658	ERDS1TJ221	CARBON	0.5W	5%	220 Ω
R666	ERJ6GEYJ473	S.M.CARB	0.1W	5%	47K Ω
R701	ERJ6GEYJ102	S.M.CARB	0.1W	5%	1K Ω
R702	ERJ6GEYJ222	S.M.CARB	0.1W	5%	2K2 Ω
R703	ERD25TJ334	CARBON	0.25W	5%	330K Ω
R704	ERJ6GEYJ750	S.M.CARB	0.1W	5%	75 Ω
R706	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R707	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R708	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R709	ERJ6GEYJ750	S.M.CARB	0.1W	5%	75 Ω
R710	ERJ6GEYJ680	S.M.CARB	0.1W	5%	68 Ω
R711	ERJ6GEYJ104	S.M.CARB	0.1W	5%	100K Ω
R713	ERJ6GEYJ750	S.M.CARB	0.1W	5%	75 Ω
R714	ERJ6GEYJ750	S.M.CARB	0.1W	5%	75 Ω
R715	ERJ6GEYJ750	S.M.CARB	0.1W	5%	75 Ω
R717	ERJ6GEYJ473	S.M.CARB	0.1W	5%	47K Ω
R718	ERD25TJ821	CARBON	0.25W	5%	820 Ω
R719	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R801	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R802	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R803	ERD25TJ102	CARBON	0.25W	5%	1K Ω
R804	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R805	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R806	ERJ6GEYJ101	S.M.CARB	0.1W	5%	100 Ω
R807	ERJ6GEYJ102	S.M.CARB	0.1W	5%	1K Ω
R808	ERJ6GEYJ102	S.M.CARB	0.1W	5%	1K Ω


Cct Ref	Parts Number	Description			
R809	ERJ6GEYJ102	S.M.CARB	0.1W	5%	1K Ω
R810	ERQ2CJP470S	FUSIBLE	2W	5%	47 Ω
R1002	ERD25TJ124	CARBON	0.25W	5%	120K Ω
R1003	ERD25TJ822	CARBON	0.25W	5%	8K2 Ω
R1004	ERJ6GEYJ103	S.M.CARB	0.1W	5%	10K Ω
R1009	ERDS1TJ101	CARBON	0.5W	5%	100 Ω
R1010	ERDS1TJ101	CARBON	0.5W	5%	100 Ω
VR501	EVNCYAA03B13	VARIABLE	5W	5%	3.13K Ω
CAPACITORS					
C001	ECUY1H223KBX	CERAMIC	50V		22nF
C002	ECA0JM471GB	ELECT	6.3V		470μF
C003	ECEA1HU2R2	ELECT	50V		2R2μF
C101	ECEA0JU101	ELECT	400V		100μF
C102	ECUV1E105KBN	CERAMIC	25V		100nF
C103	ECUV1E105KBN	CERAMIC	25V		100nF
C104	ECUV1H270JCG	CERAMIC	50V	APA	27μF
C105	ECUV1H270JCG	CERAMIC	50V	APA	27μF
C106	ECEA0JU101	ELECT	400V		100μF
C107	ECUV1E105KBN	CERAMIC	25V		100nF
C108	ECUV1E105KBN	CERAMIC	25V		100nF
C109	ECA1CM470B	ELECT	16V		47μF
C122	ECA1CHG100B	ELECT	16V		10μF
C401	ECUV1H473KBX	S.M. CAP	50V		47nF
C402	ECA1VHG102B	ELECT	35V		1pF
C403	P235W1473J	CAPACITO	100V		47nF
C404	C0JTB05H3K	CAPACITO	500V		2.2nF
C405	ECUV1H473KBX	S.M. CAP	50V		47nF
C406	E5EZT3221M	CAPACITO	25V		220μF
C407	ECUV1E105KBN	CERAMIC	25V		100nF
C408	ECKR1H104KB5	CERAMIC	50V		100nF
C409	E5EZT84R7M	CAPACITO	100V		4.7μF
C416	C0JTSLS5K1J	CAPACITO	500V		27pF
C417	ECWH10H103JS	CAPACITO	100V		10nF
C418	ECA1HM220GB	ELECT	50V		22μF
C420	C0JTSLS5S1J	CAPACITO	500V		56pF
C422	ECEA2EN2R2B	ELECT	250V		2.2μF
C423	P447F2274J	CAPACITO	200V		220nF
C424	P4N8FJ912H	CAPACITO	1.25K		9.1nF
C425	P4N8FJ222H	CAPACITO	1.25K		2.2nF
C431	ECEA2EU220	ELECT	250V		22μF
C432	P235W1104J	CAPACITO	100V		100nF
C501	ECQU2A104MNB	FILM	250V		100nF
C502	AMZV-102J	CAPACITO	50V		100μF
C503	C03L0R7H2K	CAPACITO	2kV		220pF
C503	C0PLRR7H2K	CERAMIC	2KV		220pF
C504	AMZV-473J	CAPACITO	50V		47nF
C505	E52DHJ151M	CAPACITO	450V		150μF
C506	HS11VJYB102K	CAPACITO	2kV		100nF
C507	HS11VJYB102K	CAPACITO	2kV		100nF
C508	ECKD3A102KBN	CERAMIC	250V		1nF
C509	AMZV-223J	CAPACITO	50V		22nF
C511	ECA1EHG470	ELECT	25V		47μF
C513	ECEA1HU010	ELECT	50V		1pF
C514	ECEA1CU471	ELECT	16V		470μF
C515	ECA1CHGE102B	ELECT	16V		1nF
C516	C0JTB05Q2K	CAPACITO	500V		470pF
C517	C03L0R7U2K	CAPACITO	2kV		680pF
C517	ECKW3D681JBN	CERAMIC	2KV		680pF
C518	ECUV1H103KBG	CAPACITO	50V		10nF
C519	ECA1CHG222B	ELECT	16V		2.2nF
C521	ECA2CHG101E	ELECT	160V		100μF
C523	ECA1AHG101B	ELECT	10V		100μF
C526	ECQU2A224MNB	FILM	250V		220nF
C527	ECKD3A221KBN	CERAMIC	250V		220pF
C533	ECA0JM471GB	ELECT	6.3V		470μF
C535	CD39E0MH3	CERAMIC	250V		2.2nF

Cct Ref	Parts Number	Description		
C541	ECEA1HG102B	ELECT	50V	1nF
C601	ECQV1H224JL3	FILM	50V	220nF
C602	ECA1CHG101	ELECT	16V	100µF
C603	ECUV1E105KBN	CERAMIC	25V	100nF
C604	ECQV1H224JL3	FILM	50V	220nF
C605	ECUV1H222KBN	CERAMIC	50V	2.2nF
C606	CL21B105KONE	CAPACITO	16V	1µF
C607	ECUV1H472KBG	CERAMIC	50V APA	4.7nF
C608	ECA1CM220B	ELECT	16V	22µF
C609	ECUV1E105KBN	CERAMIC	25V	100nF
C610	ECA1HM4R7	ELECT	50V	4R7µF
C611	ECUV1H102KBN	CERAMIC	50V	1nF
C612	ECUV1H102KBN	CERAMIC	50V	1nF
C613	ECQV1H104J	FILM	50V	100nF
C614	ECUV1H103KBG	CAPACITO	50V	10nF
C615	ECUV1H332KBN	CERAMIC	50V	3.3nF
C616	ECA1HM220GB	ELECT	50V	22µF
C617	ECUV1H331JCG	CERAMIC	50V	330µF
C618	ECUV1H122KBN	CERAMIC	50V	1.2nF
C619	ECEA1HU100	ELECT	50V	10µF
C626	ECEA1HU2R2	ELECT	50V	2R2µF
C627	ECUV1H102KBN	CERAMIC	50V	1nF
C628	ECUV1E105KBN	CERAMIC	25V	100nF
C629	ECA1CM101B	ELECT	16V	100µF
C630	ECUV1E105KBN	CERAMIC	25V	100nF
C631	ECEA1HU100	ELECT	50V	10µF
C632	ECUV1E105KBN	CERAMIC	25V	100nF
C633	ECA1CHG101	ELECT	16V	100µF
C634	ECUV1H473KBX	S.M. CAP	50V	47nF
C635	ECUV1H473KBX	S.M. CAP	50V	47nF
C636	ECUV1H102KBN	CERAMIC	50V	1nF
C637	ECUY1H223KBX	CERAMIC	50V	22nF
C638	ECUY1H223KBX	CERAMIC	50V	22nF
C639	ECUY1H223KBX	CERAMIC	50V	22nF
C640	E02LU5470M	CERAMIC	50V	47µF
C641	ECUV1H222KBN	CERAMIC	50V	2.2nF
C642	ECUV1H561JCX	S.M. CAP	50V	560pF
C646	ECUV1H560JCG	CERAMIC	50V	56µF
C647	ECUV1H560JCG	CERAMIC	50V	56µF
C648	ECUV1H102KBN	CERAMIC	50V	1nF
C649	ECUY1H223KBX	CERAMIC	50V	22nF
C650	ECUV1H103KBG	CAPACITO	50V	10nF
C655	CHG0B0413J	CERAMIC	50V	100nF
C702	ECKR1H102KB5	CERAMIC	50V	1nF
C703	ECUV1H471JCX	S.M. CAP	50V	470pF
C704	ECA1CHG100B	ELECT	16V	10µF
C802	ECUV1H152KBN	CERAMIC	50V	1.5nF
C803	P235WB104K	CAPACITO	100V	100nF
C804	E5EZTD100M	CAPACITO	250V	10µF
C819	C03L0R713K	CAPACITO	2kV	100nF
C1001	ECA0JM471GB	ELECT	6.3V	470µF
C1002	ECEA1HU100	ELECT	50V	10µF
C1003	CHGTX02H3M	CAPACITO	16V	2.2nF
C1004	50NW71MT1	CAPACITO	50V	1µF
C1006	ECA1CM101B	ELECT	16V	100µF
C1007	ECA1CM470B	ELECT	16V	47µF
C1008	ECA1CM470B	ELECT	16V	47µF
C1009	ECUV1H102KBN	CERAMIC	50V	1nF
C1010	CHGTB0413J	CAPACITO	50V	100nF
C1011	ECA0JM471GB	ELECT	6.3V	470µF
C1012	ECKR1H102KB5	CERAMIC	50V	1nF
TERMINALS AND LINKS				
J701	063G100042	SCART SOCKET		
J702	AV1-06D-3	RCA JACK		
J703	AV1-06D-4	RCA JACK		
J801	0350998205	CRT SOCKET		

Cct Ref	Parts Number	Description	
J1001	HTJ-035-28A	RCA JACK	
SWITCHES			
SW101	SKHVBED010	SWITCH	
SW102	SKHVBED010	SWITCH	
SW103	SKHVBED010	SWITCH	
SW104	SKHVBED010	SWITCH	
SW105	SKHVBED010	SWITCH	
SW501	SDKVA30100	MAIN SWITCH	
MISCELLANEOUS COMPONENTS			
	711UPA0022	I.R. WINDOW	
INSTRUCTION BOOKS			
	TQB8E3737A	GERMAN	
	TQB8E3737B	DUTCH	
	TQB8E3737C	ITALIAN	
	TQB8E3737F	SWEDISH	
	TQB8E3737G	NORWEGIAN	
	TQB8E3737H	FINNISH(SUOMI)	
	TQB8E3737J	PORTUGUESE	
	TQB8E3737K	DANISH	


SCHEMATIC DIAGRAMS FOR MODEL TX-15AT1C (Z-M3L CHASSIS)



IMPORTANT SAFETY NOTICE

Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only manufacturers' specified parts.



NOTE

1. RESISTOR
All resistors are carbon 1/4W resistor, unless marked otherwise.
Unit of resistance is OHM (Ω) (k=1,000, M=1,000,000)
2. CAPACITORS
All capacitors are ceramic 50V unless marked otherwise.
Unit of capacitance is μ F unless otherwise stated.
3. COIL
Unit of inductance is μ H, unless otherwise stated.

4. TEST POINT
 Test Point Position

5. EARTH SYMBOL
 Chassis Earth (Cold)
 Line Earth (Hot)

6. VOLTAGE MEASUREMENT
Voltage is measured by a d.c. voltmeter.
Measurement conditions are as follows:
Power source a.c. 220V-240V, 50Hz
Receiving Signal Colour Bar signal (RF)
All customer controls Maximum position

7.
 Indicates the Video signal path
 Indicates the Audio signal path

These schematic diagrams are the latest at time of printing and are subject to change without notice.

REMARKS

- a. Do not touch the hot part, or the hot and cold parts at the same time, as you are liable to a shock hazard.
- b. Do not short circuit the hot and cold circuits as electrical components may be damaged.
- c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously as this may cause fuse failure. Connect the earth of the instruments to the earth connection of the circuit being measured.
- d. Make sure to disconnect the power plug before removing the chassis.

NOTE

1. The Power Supply Circuit contains a circuit area, which uses a separate power supply to isolate the earth connection. The circuit is defined by HOT and COLD indications in the schematic diagram. All circuits, except the Power Circuit, are COLD.


```

FROM:TO DEFLECTION:CRIT.
      B OUT      <
      G OUT      <
      R OUT      <
      ICATH      <
      H OUT      <
      H PULSE    <
      V+         <
      V-         <
      ABL        >

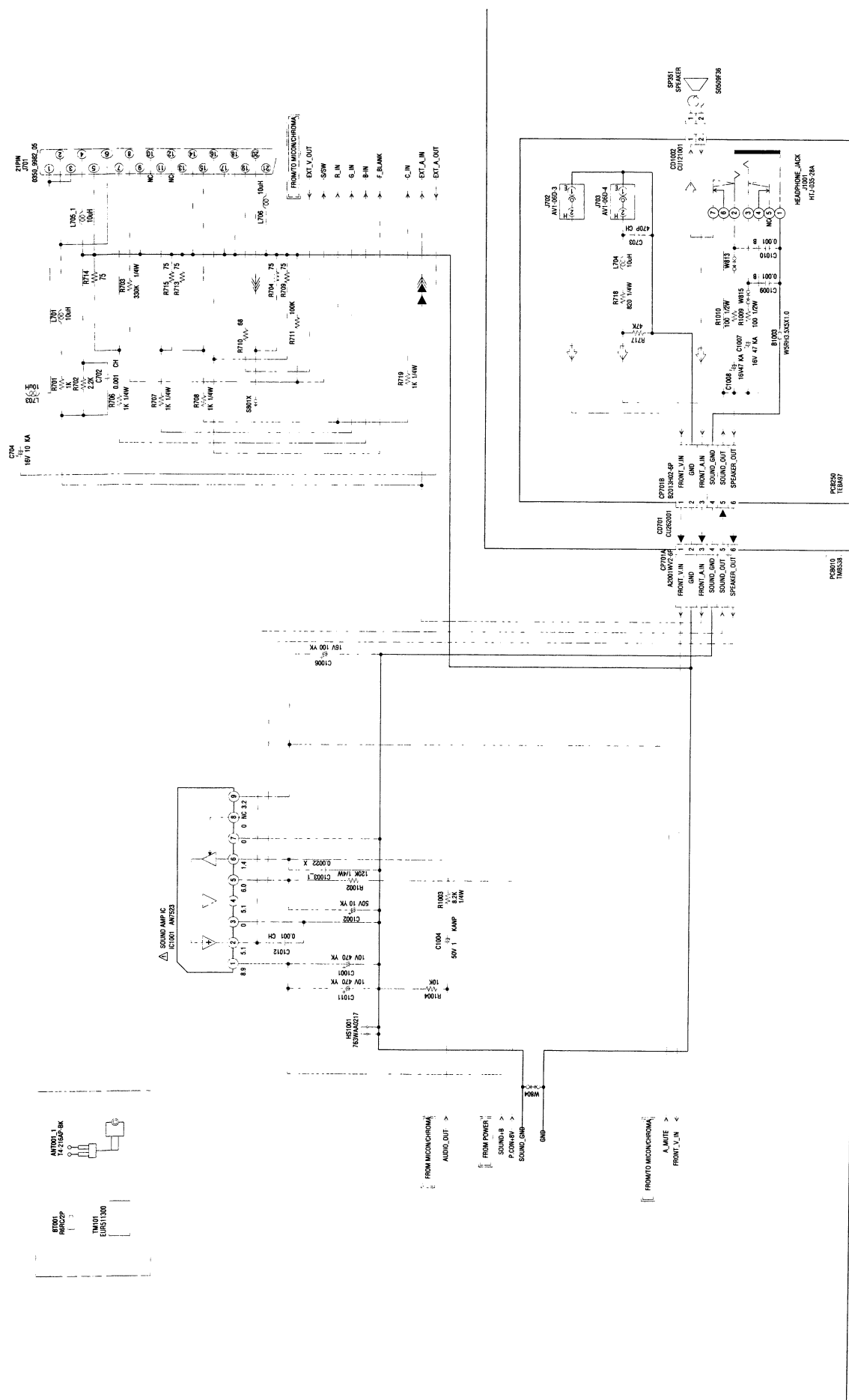
FROM:TO SOUND AMP:21PIN
      B-IN       >
      G-IN       >
      R-IN       >
      C-IN       >
      EXT A-IN   >
      EXT B-IN   >
      FRONT V-IN >
      EXT V OUT  >
      EXT A OUT  >

```



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

SOUND AMP SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

[illegible]

CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

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CRT/AV – BOARD – FOILSIDE

